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ABSTRACT

The self-reported experiences of 50,883 undergraduates at 123 institutions were analyzed using a nonlinear hierarchical model to identify individual and institutional characteristics associated with low and high levels of student engagement in educationally purposeful activities. Men, White students, and students at public institutions were more likely to be "disengaged" when compared with women, African Americans, Hispanics, and American Indians and students at private colleges. Student socioeconomic status and academic preparation had positive influences on association with more engaged groups. Individual student perceptions of certain aspects of the institutional environment and aggregate perceptions of the institutional environment had contradictory effects on student engagement. (Contains 3 tables and 47 references.) (Author/SLD)

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# Being (Dis)Engaged in Educationally Purposeful Activities: The Influences of Student and Institutional Characteristics

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**Being (Dis)Engaged in Educationally Purposeful Activities: The Influences of Student and Institutional Characteristics**

Abstract

The self-reported experiences of 50,883 undergraduates at 123 institutions were analyzed using a non-linear hierarchical model to identify individual and institutional characteristics associated with low and high levels of student engagement in educationally purposeful activities. Men, White students, and students at public institutions were more likely to be "disengaged" compared with women, African Americans, Hispanics, and American Indians and students at private colleges. Student socioeconomic status and academic preparation had positive influences on association with more engaged groups. Individual student perceptions of certain aspects of the institutional environment and aggregate perceptions of the institutional environment had contradictory effects on student engagement.

**Being (Dis)Engaged in Educationally Purposeful Activities: The Influences of Student and Institutional Characteristics**

## Introduction

The most important factor in student learning and personal development during college is student engagement, or the quality of effort students themselves devote to educationally purposeful activities that contribute directly to desired outcomes. Among the more important of these are the amount of time they study, interact with faculty members and peers related to substantive topics, and use institutional resources such as the library and technology (Astin, 1993, Chickering & Reisser, 1993; Kuh, Schuh, Whitt & Associates, 1991; Pascarella & Terenzini, 1991). Perhaps the best known set of engagement indicators is the "Seven Principles for Good Practice in Undergraduate Education" (Chickering & Gamson, 1987). These principles include student-faculty contact, cooperation among students, active learning, prompt feedback, time on task, high expectations, and respect for diverse talents and ways of learning. All are positively related to student satisfaction and achievement on a variety of dimensions (Astin, 1985, 1993; Bruffee, 1993; Goodsell, Maher, & Tinto, 1992; Johnson, Johnson, & Smith, 1991; McKeachie, Pintrich, Lin, & Smith, 1986; Pike, 1993; Sorcinelli, 1991). It follows, then, that educationally effective colleges and universities are those that channel students' energies toward appropriate activities and engage them at a high level in these activities (Educational Commission of the States, 1996; National Survey of Student Engagement, 2000; The Study Group, 1984).

However, some recent studies suggest that large numbers of college students appear to be either academically or socially disengaged, or both. Flacks and Thomas (1998)

lamented what they discerned is an emerging "culture of disengagement" enveloping students at the University of California at Santa Barbara. This was particularly evident among White students and students from more affluent families who consumed large quantities of alcohol. Kuh, Hu and Vesper (2000) found that a substantial fraction of the more than 50,000 students at 128 colleges and universities in their study were not engaged at meaningful levels in educationally purposeful activities. About 18% of all students qualified for the label of "disengaged," defined as scoring well below average on the scales from the College Student Experiences Questionnaire (CSEQ) that represent effort devoted to educationally purposeful activities.

Purpose

Relatively little is known about the characteristics of students who are disposed toward disengagement or institutional features that are linked with disengagement. That is, while the good educational practices correlated with engagement are well-documented (Chickering & Gamson, 1987; National Survey of Student Engagement, 2000), a lacuna exists in our understanding of what is associated with disengagement. In order for institutions to enhance the overall quality of undergraduate education for all students, we must identify and better understand how student and institutional characteristics interact to encourage or discourage student engagement in educational purposeful activities in college.

Two research questions guide this study. First, what student characteristics differentiate the most engaged and most disengaged students from the majority of undergraduates who are "average" in terms of their patterns and frequency of engagement

in various activities during college? Second, what institutional characteristics are linked to high and low levels of student engagement in educationally purposeful activities?

## Methods

### Data Source and Instrument

The data used in this study are from the College Student Experiences Questionnaire (CSEQ) Research Program at Indiana University. Since 1979, more than 400 four-year colleges and universities have used the CSEQ to assess the quality of the undergraduate experience resulting in about 300,000 student records. The third edition of the CSEQ (Pace, 1990a) includes items concerning background information about respondents (age, race, gender, place of residence, parent educational level, employment status, enrollment status, major) and about their experiences in three areas: (a) the amount of time and energy (effort) they devoted to various activities (14 Activities scales totaling 138 items plus items about amount of reading, writing, and studying), (b) their perceptions of important dimensions of their institution's environment (8 Environment items), and (c) what they gained from attending college (23 Estimate of Gains items). All of the questions on the CSEQ tap student behaviors that are highly correlated with desired learning and noncognitive outcomes. The questionnaire requires that students reflect on what they are putting into and getting out of their college experience. For example, the Estimate of Gains items ask students how much they think their college or university experience contributed to their own growth and development. In this sense the progress that students say they make is a value-added judgment (Pace, 1990b).

As with all survey questionnaires, the CSEQ relies on self-reports from students.

Examinations of the validity of self-reports (Baird, 1976; Lowman & Williams, 1987; Pace, 1985; Pike, 1989, 1995; Pohlman & Beggs, 1974; Turner & Martin, 1984) indicate that they are generally valid under five conditions: (1) if the information requested is known to the respondents, (2) the questions are phrased clearly and unambiguously (Laing, Sawyer, & Noble, 1988), (3) the questions refer to recent activities (Converse & Presser, 1989); (4) the respondents think the questions merit a serious and thoughtful response (Pace, 1985), and (5) answering the questions does not threaten, embarrass, or violate the privacy of the respondent or encourage the respondent to respond in socially desirable ways (Bradburn & Sudman, 1988). CSEQ items satisfy all these conditions.

The distributions of responses on the Activities and Gains scales are approximately normal and the psychometric properties of the instrument indicate it is reliable (Ewell & Jones, 1996; Kuh, Vesper, Connolly, & Pace, 1997). CSEQ Estimate of Gain scores are generally consistent with evidence of actual gains, such as results from achievement tests (Pike, 1995; Pace, 1985). For example, Pike (1995) found that student reports of their experiences using the CSEQ were positively correlated with relevant achievement test scores.

Sample

The sample for this study was composed of 50,883 full-time enrolled undergraduate students who completed all items on the CSEQ between 1990 and 1997 at 123 institutions offering at least a baccalaureate degree [1]: 21 research universities (RUs), 14 doctoral universities (DUs), 41 comprehensive colleges and universities (CCUs), 16 selective liberal arts colleges (SLAs), and 31 general liberal arts colleges (GLAs). Fifty-eight percent were

attending state-assisted schools, 29% were at RUs, 10% DUs, 36% CCUs, 9% SLAs, and 16% GLAs as classified by The Carnegie Foundation for the Advancement of Teaching (1994). Sixty-one percent were women and 83% were White, 1% American Indian, 7% Asian or Pacific Islander, 5% African American, 2% Hispanic, and 2% did not report their ethnic identity (see Table 2). Eighty-seven percent were 22 or younger, 9% between 23 and 27, and 4% 28 or older. Forty percent were first-generation college students. Approximately 37% were first-year students, 20% sophomores, 16% juniors, and 28% seniors (Table 1). About 43% were majoring in an applied field (e.g., education, health-related, business), 17% in social sciences, 22% in mathematics, science, or related area (engineering, computer science), and 14% in the humanities including the arts and foreign languages, with about 5% undecided as to major field.

(Insert Table 1 About Here)

Variables

Kuh et al. (2000) identified ten types of students: individualist, grind, disengaged, intellectual, scientist, socializer, artist, recreator, collegiate, and conventional. The "disengaged" and the "intellectuals" anchored the low and high ends of the engagement continuum. The differences in the amount of educational effort put forth and self-reported gains for the remaining eight types of students were small in magnitude so as to be trivial in practical terms, even though their patterns of engagement in college activities were distinctive one from another. Because we are primarily concerned in the factors related to being highly engaged or disengaged in college, the remaining eight types of students were combined to form one group named "Typical." The membership of the intellectual and

disengaged groups is intact, but we renamed the "intellectual" group the "Engaged." Thus, all students were assigned to one of three membership groups (Disengaged, Typical, Engaged) based on their engagement scores that were derived from their responses to the CSEQ activities scales (Kuh et al., 2000). There are advantages of using engagement membership as outcome measure in contrast to using aggregate engagement score. Previous studies have shown that both the quantity and the quality of effort count in student gains from college (Pascarella & Terenzini, 1991). Using a single measure of total engagement score may in some way mask the level of student engagement. In contrast, the engagement groups we used in this study have been empirically tested and are closely related to student gains from college (Kuh, et al., 2000).

Socioeconomic status (SES) and student ability are highly correlated and affect college outcomes (Pascarella & Terenzini, 1991). For this reason, two control variables were created, student SES and academic preparation. SES was the combination of the level of parents' education and the amount parents contributed to college costs. Academic preparation was represented by the sum of student self-reported grades and an item about educational aspirations. In addition, institutional selectivity and control (public, private) were also controlled in all analyses with the selectivity measures taken from Barron's Profiles of American Colleges (1996). Student gender, race and ethnicity, major field, institutional type, and year in college were coded as dummy variables. To account for the influence of the environment on student engagement membership we used the three Environment factor scores that are produced by a factor analysis of students' responses to eight CSEQ Environment items. These factors are the extent to which students perceive

their school (a) emphasizes scholarly and intellectual activities, (b) manifests congenial relations among faculty, students, and administrators, and (c) emphasizes acquiring vocational and practical competencies (Kuh et al., 1997). The coding of variables on individual and institutional characteristics was shown in Table 1.

The outcome variable in this study is the three membership groups (disengaged, typical, and engaged). All students were assigned to one of three groups as described earlier and coded as Engaged=1, Typical=2, and Disengaged=3.[2]

Statistical Model and Data Analysis

Because we seek to determine the effects of both student and institutional characteristics on student engagement, Hierarchical Linear Modeling (HLM) (Bryk & Raudenbush, 1992; Ethington, 1997, 2000) was the preferred analytical approach. All student-level continuous variables were standardized as *z*-scores (M=0, SD=1), centered on the grand-mean of the sample of students. Institution-level continuous variables were also standardized as *z*-scores (M=0, SD=1), centered on the grand-mean of the sample of institutions. Because the outcome variables were ordinal and multiple in nature, a non-linear HLM model was estimated with respect to the characteristics of ordinal multi-category outcome measure.

In this model, institutional characteristics were assumed to have a direct effect on student membership in different groups after controlling for individual student characteristics. The student-level model was estimated by:

$$(1)\ Ln\left(\frac{P(Disengaged)}{1-P(Disengaged)}\right)_{ij} = \beta_{j0} + \beta_{j1}X_{ij1} + \beta_{j2}X_{ij2} + \ldots + \beta_{jp}X_{ijp} + \varepsilon_{ij}, \text{ and}$$

$$(2)\ Ln\left(\frac{P(Typical)}{1-P(Typical)}\right)_{ij} = \beta_{j0} + \beta_{j1}X_{ij1} + \beta_{j2}X_{ij2} + \ldots + \beta_{jp}X_{ijp} + \delta_2 + \varepsilon_{ij},$$

where $i$ represented the $i$th student, $j$ represented the $j$th institution, and $p$ represented the $p$th student level covariate. $X$ represents student characteristics such as gender, race or ethnicity, academic preparation, and so on, and the coefficients of $X$ represent how student characteristics affect membership of engagement. $\delta_2$ is the automatically generated threshold value by the HLM program, which is the difference in the log-odds of Typical versus Engaged, holding constant the exploratory variables and the random effects (Raudenbush, Bryk, Cheong, & Congdon, 2000).

The institution-level model was estimated by:

$(3)\ \beta_{j0} = \gamma_{0k} + \gamma_{1k}Z_{j1} + \gamma_{2k}Z_{j2} + \ldots + \gamma_{qk}Z_{jq} + \nu_{jk}$ where $j$ represented the $j$th institution and $q$ represented the $q$th institutional level covariate. $Z$ represents institutional characteristics such as institutional type, selectivity, environment, and so forth, and the coefficients of $Z$ represent how institutional characteristics affect student effort.

In the individual student-level model, we controlled for such student background characteristics as gender, race and ethnicity, major field, and class level, student SES, and educational preparations. As mentioned earlier, all the student-level variables were centered around the grand mean for the sample, which allowed us to interpret the intercept as the mean outcome for each institution, adjusted for student characteristics in each institution (Bryk & Raudenbush, 1992).

In the institution-level model, two sets of variables were analyzed. The first set was composed of the five types of four-year colleges and universities -- RUs, DUs, CCUs,

SLAs, and GLAs (The Carnegie Foundation for the Advancement of Teaching, 1994). The second set of variables was composed of three aggregate measures of the environment mentioned earlier: scholarly and intellectual emphasis, vocational and practical emphasis, and quality of personal relations (Kuh et al., 1997). In addition, institutional selectivity and institutional control were also included when estimating how well the two sets of institutional characteristics predicted student membership in three groups.

## Results

Table 2 reports the characteristics of the students assigned to the three groups (Disengaged, Typical, and Engaged). We presented the distribution of students focusing on student characteristics that were omitted as reference groups (variable in parenthesis in Table 2) and the continuous variables in the statistical analysis. The largest group by definition is the Typical (76.4%), followed by the Disengaged (18.2%) and the Engaged (5.4%). A smaller proportion of women were in the Disengaged group while more White students were in the Disengaged and Typical groups. The percentage of students with pre-professional majors increased moving along the continuum from Engaged to Disengaged as did the percentage of first-year students.

There was no clear trend of student distribution with respect to socioeconomic status. However, it appears that students in the disengaged groups had below-average socioeconomic status than those in Typical or Engaged groups. Students who were better prepared academically and who were attending more selective institutions were more likely to be in the Engaged group than in the other two groups. Similarly, students who had more positive views of their campus environment were more likely to be Engaged than

Disengaged.

Private colleges and universities had more students classified as Engaged and fewer as Disengaged; CCUs had a slightly higher percentage of students in the Disengaged group than the other two groups. Institutional selectivity appears to be positively associated with student membership in more engaged groups, so do campuses emphasizing scholarly and intellectual aspects and high quality personal relations. However, institutions emphasizing vocational and practical matters appear to have slightly negative relation with student membership in more engaged groups.

(Insert Table 2 About Here)

The non-linear ordinal HLM model identifies the effects of student and institutional characteristics on group membership (Table 3). We report both the coefficient estimates and the factor estimates as an odds ratio change. The odds ratio was calculated to compare membership in the Engaged group relative to membership in the Typical and Disengaged groups, or to compare membership in the Engaged and Typical groups relative to membership in the Disengaged group. That is, the odds ratios indicate membership in the Engaged compared with the rest or the Disengaged group compared with the rest. Any score above 1 on the odds ratio change means that variable has positive effect on a student being classified as Engaged while anything below 1 indicates that the variable has negative effect on being assigned to the Engaged group (Raudenbush, Bryk, Cheong, & Congdon, 2000).

(Insert Table 3 About Here)

All else being equal, men were more likely to be disengaged than women were.

Compared with White students, students from three of the four other ethnic groups were more likely to be in the Engaged group. Asian or Pacific Islanders were similar to Whites in their distribution across the three groups. Student SES was positively associated with student membership in more engaged groups. Combining with evidence from the descriptive statistics in Table 2, this may be largely due to the disproportion of low SES students in the Disengaged group.

Academic preparation was also positively related to student engagement. For example, a one standard deviation increase in academic preparation increases by a factor of 1.30 the odds of being Engaged relative to being Typical and Disengaged or being Engaged and Typical relative to being Disengaged.

Compared with students in pre-professional major fields, students in humanities, math and sciences, and social sciences were more likely to be in either the Engaged or Typical groups. Students who were undecided as to their major were similar to the pre-professional students with regard to group membership. Compared with the first-year students, sophomores, juniors, and seniors were more likely to be associated with more engaged groups.

Students were more likely to be Engaged if they perceived that their institution emphasized scholarship and intellectual and critical analysis, characterized by high quality personal relations between groups, or emphasized vocational and practical matters. For example, a one standard deviation increase in a student's perception score on the environmental measure of scholarly and intellectual emphasis increased the odds of being Engaged (relative to being Typical and Disengaged) or being Engaged and Typical relative

to being Disengaged by a factor of 1.25. A one standard deviation increase in the perception score on the quality of personal relations environment measure increased the odds by a factor of 1.33. And a one standard deviation increase in the score of an institution emphasizing practical matters increased the odds of being in the Engaged group by a factor of 1.09.

A higher proportion of students at public institutions were classified as Disengaged compared with their counterparts at the private institutions. Compared to students at private institutions, being in public institutions decreased probability of being in more engaged groups by a factor of 0.83. Institutional selectivity was not a factor in determining group membership. Only GLA students (when compared with their CCU counterparts) had a significantly higher probability of being either Engaged or Typical (1.31 times more likely). Students at other types of institutions did not significantly differ in their group memberships.

Finally, there were no significant net effects on engagement of the aggregate measures of institutional emphasis on scholarly and intellectual dimensions or the quality of personal relations, even though the descriptive statistics suggested that this might be the case. However, students at institutions that emphasized practical and vocational matters were less likely to be engaged. Considering the different influences on engagement membership association of individual student perceptions of the institutional emphasis on practical and vocational matters and the aggregate measure of this environmental feature, it appears that what an individual student perceives can have a different (usually positive) influence on engagement compared with the aggregated student perceptions of the

environment.

## Discussion

The warrant for this study springs from the empirical observation that students who devote a relatively high level of effort to a variety of educationally purposeful activities gain more from college than those who focus on only one activity or who put forth little effort in only a few (Kuh, et al., 2000; Pace, 1990b; Pascarella & Terenzini, 1991). The findings from this study indicate that certain student background characteristics, level of academic preparation, number of years of college experience, and their major field interact in complex ways to influence their engagement in educationally purposeful activities. It also seems to be the case that these characteristics, experiences, and perceptions have a cumulative effect on their level of engagement over time (i.e., seniors are more engaged than first-year students are) as does one's intellectual and psychosocial developmental levels and intrinsic motivation (Kuh et al., 2000). The results from this study confirm some of the findings from other recent studies (e.g., Flacks & Thomas, 1998). For example, women and students from most other racial and ethnic groups were more likely to be engaged compared with men and White students. One departure from Flacks and Thomas, however, was that student SES was positively related to group membership in the more engaged groups (Engaged and Typical in relation to Disengaged).

The better one is academically prepared and the longer one is in college, the more likely a student was to engage at a level comparable to the Typical or Engaged student in this study. These findings are not surprising as disengagement probably takes a toll in terms of academic performance and satisfaction, correlates of premature departure from

college (Tinto, 1993).

Level of engagement was, for the most part, independent of institutional characteristics such as Carnegie type or institutional selectivity. Indeed, after controlling for student characteristics, institutional selectivity had no bearing on group membership. Only GLAs (compared with CCUs) had significant positive effects on engagement. Two other institutional characteristics had negative effects – being public and emphasizing practical application and vocational preparation (as represented by aggregated student perceptions).

This brings us to perhaps the most interesting finding from the study, that the perceptions of individual students of all three dimensions of their institutional environments positively influenced engagement but that the aggregated perceptions of the degree to which a school emphasizes practical and vocational matters appeared to dampen or discourage student engagement. This result is generally consistent with patterns of findings from previous work looking at peer influence student perceptions of institutional environments and the effects of these perceptions on student engagement (Hu & Kuh, 2000; Kuh & Hu, in press). Indeed, peers substantially influence how students spend their time and the meaning they make of their experiences including their personal satisfaction with college (Astin, 1993; Kuh et al., 2000; Pascarella & Terenzini, 1991). Perhaps seeing that their studies can have practical value encourages students to become more actively involved in various other appropriate aspects of the college experience. At the same time, being around peers who are in college primarily to obtain a good job (as reflected by the aggregated measure) may discourage student engagement.

The finding that individual perception and aggregated perception on institutional environment have opposite effects on student engagement is also instructional in the controversy over the choice of unit of analysis in organizational studies (Berger & Milem, 2000). Organizational studies have wrestled historically with defining the level of analysis that is appropriate as well as choices related to units of measurement. Researchers have been concerned with examining organizational phenomena at multiple levels (Pfeffer, 1982, 1997; Peterson, 1985). As Hu and Kuh (2000) suggested, hierarchical modeling is a viable way to differentiate the impacts at individual and organizational level on the outcome measures, which also has some theoretical perspectives in interpreting the results (Martin, 1992). When only one level of unit of analysis was chosen, the final results depend largely on the relative weights of the variances at the individual level and the variances at the organizational level (Bryk & Raudenbush, 1992).

Some student background characteristics (e.g., White students, men, poor academic preparation) and some institutional characteristics (e.g., public support) were associated with lower levels of student engagement in educationally purposeful activities. Most colleges and universities cannot do much about such factors (i.e., poor academic preparation, being White, being male, and being a public college or university). However, there are some things an institution can do in terms of influencing how individual students perceive their school, particularly perceptions of the utility of their studies – how what they are learning can be used in their lives beyond the classroom – and the extent to which their school values intellectual activity and promotes high quality relations between various groups on campus. To address the former, for example, faculty members can make

concrete links between what students are reading and discussion and other aspects of their lives such as their job setting and family or peer relations and design assignments and examinations that require students to demonstrate how to use what they are learning in other settings. These ideas are discussed in some detail in Kuh, Douglas, Lund, and Ramin-Gyurnek (1994).

Faculty members, academic administrators, and student affair professionals can influence the extent to which students perceive that the institutional environment values scholarship and intellectual activity by communicating high expectations for student performance, both inside and outside the classroom. Such expectations should clearly and consistently communicated to students by admissions officers and others before and repeated after students matriculate (Kuh, 2000; Kuh et al., 1991). Faculty members must then hold students to these standards by structuring classes and making assignments that challenge students at appropriate levels (National Survey of Student Engagement, 2000). There is, for example, some evidence that students expect to read and write more than they actually do (Kuh, in press). No wonder that student perceptions of institutional environments may not be in sync with the amount of effort required to succeed in college.

Limitations

This study has several limitations. First, only full-time enrolled students were included in the study to examine the effects of individual and institutional characteristics on engagement-based group membership. It is not known if the relationships between student engagement, student characteristics, and institutional characteristics discovered in this study hold for part-time students as well. Second, adding other institutional

characteristics to the analysis, such as per student educational expenditures and measures of research productivity, may produce different results and conclusions. Future research should include more measures of institutional characteristics. Finally, we used the 1994 Carnegie classification of higher education institutions in this study. The use of the newly released institutional classification by the Carnegie Commission might shed new lights on the effects of institutional characteristics on student membership associations.

## Conclusion

Student engagement is a function of the interaction of student and institutional characteristics. Many of these characteristics are immutable, such as sex and racial and ethnic background and institutional type and control (e.g., state-supported). Others are difficult for an institution to change unilaterally (e.g., students' academic preparation) without a fundamental shift in its mission and constituent base. The most promising approach to encouraging higher levels of student engagement on the part of more students is to change the perceptions that students have of certain aspects of the institutional environment. While this is not easy to do, it is possible if various groups work together in designing an enrollment management and institutional culture change strategy.

Notes:

[1] The data set used in this study is the one used in the Kuh, Hu, & Vesper (2000) study with the elimination of several institutions with too few student records and student records without reporting on perceptions on institutional environment.

[2] The non-linear hierarchical model for multiple ordinal outcomes was set up in the way to compare category with lower score to the category with higher score in coding.

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TABLE 1.
Sample Means, Standard Deviations, and Variable Description on Variables in Original Measurement

| VARIABLE | Mean (%) | S.D. | Description |
|---|---|---|---|
| **Student-level variables (N=50,883)** | | | |
| Men | 39.0% | | A dummy variable (Yes=1, No=0) |
| (Women) | 61.0% | | Reference group |
| American Indian and Other | 3.0% | | A dummy variable (Yes=1, No=0) |
| Asian or Pacific Islander | 7.0% | | A dummy variable (Yes=1, No=0) |
| African American | 5.0% | | A dummy variable (Yes=1, No=0) |
| Hispanic | 2.3% | | A dummy variable (Yes=1, No=0) |
| (White) | 82.7% | | Reference group |
| SES | 4.64 | 1.67 | Sum of measures of who pays for college and parents' education, ranging from 2 to 7 |
| Academic Preparation | 5.03 | 1.25 | Sum of college grades and educational aspirations, ranging from 2 to 7 |
| Humanities | 14.0% | | A dummy variable (Yes=1, No=0) |
| Math and sciences | 21.5% | | A dummy variable (Yes=1, No=0) |
| Social sciences | 16.8% | | A dummy variable (Yes=1, No=0) |
| Undecided | 4.7% | | A dummy variable (Yes=1, No=0) |
| (Pre-professional) | 43.1% | | Reference group |
| Sophomore | 19.7% | | A dummy variable (Yes=1, No=0) |
| Junior | 15.8% | | A dummy variable (Yes=1, No=0) |
| Senior | 27.8% | | A dummy variable (Yes=1, No=0) |
| (First-year student) | 36.7% | | Reference group |
| Perception on Scholarly and Intellectual Aspect | 15.43 | 3.06 | Scholarly and intellectual emphasis, ranging from 3 to 21 |
| Perception on Personal Relations | 15.07 | 3.40 | Emphasis on quality of personal relations, ranging from 3 to 21 |
| Perception on Vocational and Practical Emphasis | 9.54 | 2.46 | Vocational and practical emphasis, ranging from 2 to 14 |
| **Institutional Variable (N=123)** | | | |
| RU | 17.0% | | A dummy variable (Yes=1, No=0) |

| | | | |
|---|---|---|---|
| DU | 11.0% | | A dummy variable (Yes=1, No=0) |
| SLA | 8.9% | | A dummy variable (Yes=1, No=0) |
| GLA | 25.0% | | A dummy variable (Yes=1, No=0) |
| (CCU) | 33.0% | | Reference group |
| Public | 44.0% | | A dummy variable (Yes=1, No=0) |
| (Private) | 56.0% | | Reference group |
| Institutional selectivity | 3.35 | 1.18 | Selectivity measure from Barron's, ranging from 1 to 6 |
| Scholarly and Intellectual Environment | 15.72 | 1.06 | Scholarly and intellectual emphasis, aggregated to institutional level, ranging from 13.67 to 18.94 |
| Personal Relations Environment | 15.31 | 0.94 | Emphasis on quality of personal relations, aggregated to institutional level, ranging from 12.94 to 18.18 |
| Vocational and Practical Environment | 9.57 | 0.68 | Vocational and practical emphasis, aggregated to institutional level, ranging from 6.84 to 11.84 |

TABLE 2
Unadjusted Descriptive Statistics on Student and Institutional Variables By Student Type

| VARIABLE | Disengaged | | Typical | | Engaged | |
|---|---|---|---|---|---|---|
| | Mean (%) | S.D. | Mean (%) | S.D. | Mean (%) | S.D. |
| **Student-level** | | | | | | |
| Men | 49.0% | | 36.8% | | 36.8% | |
| (Women) | 51.0% | | 63.2% | | 63.2% | |
| American Indian and Other | 2.7% | | 3.0% | | 4.8% | |
| Asian or Pacific Islander | 8.4% | | 6.7% | | 5.0% | |
| African American | 4.3% | | 5.1% | | 7.7% | |
| Hispanic | 2.4% | | 2.3% | | 2.9% | |
| (White) | 82.2% | | 82.9% | | 79.6% | |
| SES | -0.08 | 1.04 | 0.02 | 0.99 | 0.01 | 1.01 |
| Academic Preparation | -0.29 | 1.04 | 0.04 | 0.98 | 0.35 | 0.94 |
| Humanities | 8.1% | | 14.5% | | 25.6% | |
| Math and sciences | 22.0% | | 21.3% | | 21.2% | |
| Social sciences | 13.1% | | 17.5% | | 20.3% | |
| Undecided | 7.3% | | 4.3% | | 1.8% | |
| (Pre-professional) | 49.3% | | 42.5% | | 31.1% | |
| Sophomore | 20.5% | | 19.6% | | 17.8% | |
| Junior | 15.5% | | 15.7% | | 17.0% | |
| Senior | 22.0% | | 28.1% | | 43.6% | |
| (First-year student) | 42.0% | | 36.6% | | 21.7% | |
| Perceptions of Scholarly and Intellectual Emphasis | -0.36 | 0.97 | 0.01 | 0.98 | 0.48 | 1.01 |
| Perceptions of Quality of Personal Relations | -0.34 | 1.00 | 0.01 | 0.98 | 0.55 | 0.91 |
| Perceptions of Vocational and Practical Emphasis | -0.23 | 0.96 | 0.01 | 1.00 | 0.27 | 1.05 |
| **Institution-level** | | | | | | |
| Public | 70.3% | | 56.3% | | 42.6% | |
| (Private) | 29.7% | | 43.7% | | 57.4% | |
| Institutional selectivity | -0.14 | 0.91 | 0.03 | 1.01 | 0.10 | 1.06 |
| RU | 33.4% | | 28.9% | | 20.0% | |
| DU | 9.6% | | 9.9% | | 8.5% | |
| SLA | 4.8% | | 9.4% | | 15.0% | |
| GLA | 12.6% | | 16.0% | | 23.2% | |
| (CCU) | 39.6% | | 35.8% | | 33.3% | |
| Scholarly and Intellectual Emphasis | -0.24 | 0.91 | 0.03 | 1.00 | 0.39 | 1.07 |
| Quality of Personal Relations | -0.19 | 0.96 | 0.02 | 1.00 | 0.37 | 0.97 |
| Vocational and Practical Emphasis | 0.01 | 0.85 | -0.01 | 1.01 | -0.02 | 1.20 |
| N | 9,263 | | 38,888 | | 2,732 | |
| % of N | 18.2% | | 76.4% | | 5.4% | |

TABLE 3
Coefficient Estimates from Non-Linear HLM Model of Student and Institutional Characteristics on Student Membership

| VARIABLE | Coefficients | Factor | Significance |
|---|---|---|---|
| **Student-level** | | | |
| Men | -0.304 | 0.738 | * |
| (Women) | | | |
| American Indian and Other | 0.469 | 1.598 | * |
| Asian or Pacific Islander | 0.052 | 1.053 | |
| African American | 0.647 | 1.910 | * |
| Hispanic | 0.185 | 1.203 | * |
| (White) | | | |
| SES | 0.055 | 1.057 | * |
| Academic Preparation | 0.259 | 1.296 | * |
| Humanities | 0.711 | 2.036 | * |
| Math and sciences | 0.192 | 1.212 | * |
| Social sciences | 0.342 | 1.408 | * |
| Undecided | -0.100 | 0.905 | |
| (Pre-professional) | | | |
| Sophomore | 0.211 | 1.235 | * |
| Junior | 0.297 | 1.346 | * |
| Senior | 0.523 | 1.687 | * |
| (First-year student) | | | |
| Perceptions of Scholarly and Intellectual Emphasis | 0.222 | 1.249 | * |
| Perceptions of Quality of Personal Relations | 0.287 | 1.332 | * |
| Perceptions of Vocational and Practical Emphasis | 0.088 | 1.092 | * |
| **Institution-level** | | | |
| Public | -0.184 | 0.832 | * |
| (Private) | | | |
| Institutional selectivity | -0.006 | 0.994 | |
| RU | -0.141 | 0.868 | |
| DU | 0.085 | 1.089 | |
| SLA | 0.274 | 1.315 | |
| GLA | 0.270 | 1.310 | * |
| (CCU) | | | |
| Aggregate Measure of Scholarly and Intellectual Emphasis | 0.003 | 1.003 | |
| Aggregate Measure of Quality of Personal Relations | 0.020 | 1.020 | |
| Aggregate Measure of Vocational and Practical Emphasis | -0.102 | 0.903 | * |

Note: Coefficients are interpreted as the effects on the odds of being "Engaged" in relation to being "Typical" and "Disengaged, or the odds of being "Engaged" and "Typical" in relation to being "Disengaged." * $p < 0.05$.